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CALIFORNIA **URBAN WATER** AGENCIES Rick W

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May 16, 1997

Mr. Lester Snow
Executive Director
CALFED/Bay-Delta Program
1416 Ninth Street
Suite 1155
Sacramento, CA 95814

Dear Mr. Snow: Lester

Delta Salinity Issues

California Urban Water Agencies (CUWA) previously has communicated to you our interest in water quality for drinking water needs and for water management. This letter expands upon the latter of these issues.

TDS levels in Delta water exports already vary significantly, ranging from approximately 100 mg/L to over 450 mg/L during the 10 years ending 1995 and exceeding 750 mg/L in 1977 (Figure 1)[1]. Further, DWR recently estimated that TDS levels in Delta inflows could increase by as much as 17.5 mg/L by 2020 due to increased wastewater discharges associated with population growth in the Central Valley drainage area. Groundwater pump-in programs along the California Aqueduct, to the extent they occur in the future, are another potential source of TDS which can affect SWP deliveries.

CUWA members are concerned that such increases and continued variability in TDS levels may 1) increase demand for Delta water which could otherwise be avoided, 2) adversely affect local resource programs such as water recycling and groundwater management and 3) cause significant economic impacts due to water usage. Consequently, CALFED needs to establish TDS (chloride) targets in the planning process for a Bay-Delta solution.

[1] During the ten years ending 1995, chloride levels measured at H.O. Banks Delta Pumping Plant ranged from approximately 20 mg/L to approximately 175 mg/L. In 1977, chloride levels exceeded 325 mg/L.

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Increased Demand for Delta Water. Several CUWA agencies depend on relatively low saline Delta water to blend with other higher salinity water sources. When Delta water salinity increases, more Delta water is needed to maintain salinity objectives for blended water supplies or leach salts from farm fields and urban landscapes. Added demand for Delta water potentially adversely affects water supply availability for all exporting and diverting agencies. Further, Delta water is typically more expensive than alternative water sources, and increasing the amount of Delta water to maintain blending objectives represents an added cost. Yet, if blending objectives are not achieved municipal, industrial, agricultural, and other beneficial uses may be adversely affected.

Adverse Impacts on Local Resource Programs. Water recycling projects are a critical source of current and future water supply, particularly for CUWA's Southern California members. However, recycled water must also meet customer objectives for TDS, and recycling plant discharges must meet regulatory requirements. During the last drought, chloride levels in State Project water doubled and TDS levels significantly increased, causing violation of discharge permit requirements and adverse impacts for recycled water users. Salinity concentrations in local waters typically change slowly. In contrast, the sudden and significant changes that have been characteristic of Delta water are very disruptive to local water management practices.

In addition, the ability to store water for future use through groundwater recharge or conjunctive use programs depends on salinity levels in the water supply not exceeding water quality objectives for groundwater aquifers. These programs, along with recycling, are particularly important for managing demand for Delta water during the environmentally sensitive drought periods.

Economic Impacts. TDS can have a direct economic effect on industrial, residential, and agricultural water users. Industrial uses of water including manufacturing processes are sensitive to salinity content and usually require on-site treatment facilities. Treatment costs can increase as salinity levels rise. High TDS water can reduce the economic life of residential plumbing facilities and water using appliances, and increase cleaning costs. Also, high TDS levels can affect crop yields of salt-sensitive crops such as strawberries and avocados. While the salinity of Delta waters is generally below levels which cause the most significant impacts, Delta water is frequently blended with higher TDS water and low salinity is necessary to reduce otherwise potentially significant economic impacts.

Impacts on CUWA Members. The following are just a few examples of how Delta salinity directly affects CUWA's members.

- The Alameda County Water District depends on lower salinity Delta water to reduce the overall salinity of local water resources used for groundwater recharge. TDS levels in local surface waters used for groundwater recharge average around 400 mg/L, yet Basin Plan TDS objectives for local groundwater aquifers are 250 mg/L. Low-TDS Delta water is necessary to help achieve Basin Plan objectives.

- The San Diego County Water Authority (SDCWA) historically has imported nearly 90% of the San Diego region's water supplies. The sources of imported supplies are the Colorado River, which has TDS levels frequently exceeding 700 mg/L, and State Project water. Based on a 1988 Bureau of Reclamation study of the economic impacts of salinity of the Colorado River, SDCWA estimates that the use of higher salinity Colorado River water can cost in excess of $87 per household per year or $78 million annually within SDCWA's service area (amounts in 1996 dollars). Lower salinity Delta water is critical for reducing these economic impacts. Further, the San Diego region has various ongoing and planned recycling programs to reduce reliance on water imports. These programs, which are anticipated to meet 10% of San Diego's regional needs by the year 2010, depend on lower salinity Delta water to meet recycling water quality objectives.

- The Metropolitan Water District of Southern California (MWD) is currently committed to financial assistance to 42 recycling projects and 10 groundwater treatment projects which are collectively expected to produce about 180,000 acre-feet per year by 2010 at an annual cost of about $150 million to MWD and its member agencies. This sizable investment is at risk when State Project water salinity is high. If such projects are not undertaken, further demands may be placed on Delta water supplies.

- Ensuring acceptable and consistent taste quality was one of the principal reasons Contra Costa Water District (CCWD) established a 65 mg/L chloride (and 50 mg/L sodium) goal for blended water supplies to its service area from the soon to be completed Los Vaqueros Project. To be able to meet the delivered chloride goal, CCWD will need to fill Los Vaqueros reservoir with water of 50 mg/L chloride or better. The Los Vaqueros reservoir will store high quality water diverted from the Delta which will be used later for blending with direct diversions of Delta water that exceed the 65 mg/L chloride goal, and for emergency supply. Increases in Delta salinity levels (chloride, TDS, bromide) will affect the ability of CCWD to meet its commitment to its customers for high quality drinking water and emergency supply reliability.

CUWA previously recommended to CALFED a desirable long-term TDS target of 220 mg/L (55 mg/L chloride) and a desirable monthly average target of 440 mg/L (110 mg/L chloride) for Delta water. CUWA is beginning to develop intermediate-term desirable salinity targets (e.g., 6 month, 1 year and 2 year targets) necessary for minimizing variability and reducing the adverse impacts cited above. The recommended intermediate-term salinity targets will be provided to you once they are developed. CUWA urges CALFED to adopt a salinity objective for its Program alternatives consistent with CUWA's recommendations.

CUWA also requests that CALFED develop "confidence limits" around the monthly, intermediate, and long-term salinity targets. Reliable estimates of future TDS concentrations are necessary for Delta water users to plan effective water quality strategies regarding recycling and conjunctive use of local and imported supplies. CUWA's water quality committee welcomes the opportunity to work with your office to manage salinity for the benefit of all water users and the

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environment. If you have any questions or need more information, please call me or Dr. Roy Wolfe at (213) 217-6241.

Sincerely,

Byron M. Buck
Executive Director

BMB:sab

Attachment

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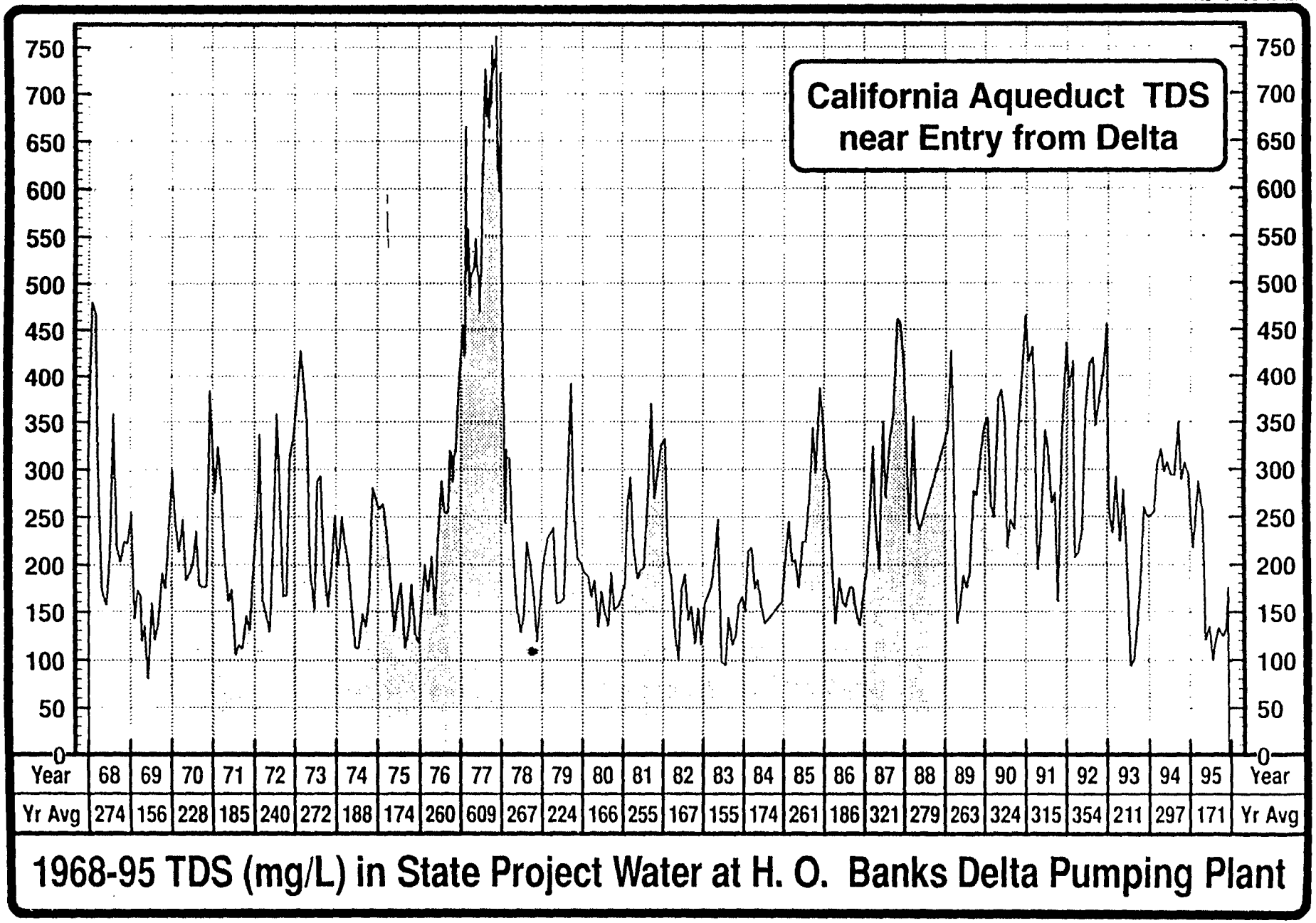
Figure 1



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